Calculus 1 Workbook

Derivatives of trig functions

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MATH

TRIGONOMETRIC DERIVATIVES

1. Find $f'(x)$ if $f(x) = 5x^7 + 8\sin(7x^7)$.

2. Find $g'(x)$ if $g(x) = 3\sin(4x^3) - 4\cos(6x) + 3\sec(2x^4)$.

3. Find $h'(x)$ if $h(x) = 5\tan(4x^6) + 6\cot(6x^4)$.

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INVERSE TRIGONOMETRIC DERIVATIVES

■ 1. Find $f'(t)$.

$$f(t) = 4\sin^{-1}\left(\frac{t}{4}\right)$$

■ 2. Find $g'(t)$.

$$g(t) = -6\cos^{-1}(2t+3)$$

■ 3. Find $h'(t)$.

$$h(t) = 3\tan^{-1}(6t^2)$$

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HYPERBOLIC DERIVATIVES

1. Find $f'(\theta)$ if $f(\theta) = 3\sinh(2\theta^2 - 5\theta + 2)$.

2. Find $g'(\theta)$ if $g(\theta) = 2\cosh(5\theta^{\frac{3}{2}} + 6\theta)$.

3. Find $h'(\theta)$ if $h(\theta) = 9\tanh\left(3\theta^2 - \theta^{\sqrt{3}}\right)$.

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INVERSE HYPERBOLIC DERIVATIVES

1. Find $f'(t)$ if $f(t) = 7\sinh^{-1}(5t^4)$.

2. Find $g'(t)$ if $g(t) = 4\cosh^{-1}(2t - 3)$.

3. Find $h'(t)$ if $h(t) = 9\tanh^{-1}(-7t + 2)$.

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